

SECTION 9

LATHING AND PLASTERING

9-01 SCOPE: The work covered by this section of the specifications consists in furnishing all plant, labor, equipment, appliances, and materials not furnished by the Government, and in performing all operations in connection with lathing and plastering, complete, in strict accordance with this section of the specifications and the applicable drawings, and subject to the terms and conditions of the contract.

9-02 APPLICABLE SPECIFICATIONS: The following specifications, of the issues listed below but referred to thereafter by basic designation only, form a part of this specification:

a. Federal Specifications:

FF-N-101	Nails; Spikes; Staples; and Tacks
QQ-B-101c	Bases, Metal; (for) Plaster and Stucco Construction
QQ-W-461a	Wire; Steel (Carbon); Bare and Zinc-Coated
SS-C-192a	Cements; Portland
SS-L-351	Lime; Hydrated (for) Structural Purposes
SS-Q-351	Quicklime; (for) Structural Purposes

b. American Society for Testing Materials Standard:

C 29-42	Standard Method of Test for Unit Weight of Aggregate
C 35-39	Standard Specifications for Sand for Use in Plaster
C 110-49	Standard Methods of Physical Testing of Quicklime and Hydrated Lime
C 136-46	Method of Test for Sieve Analysis of Fine and Coarse-Aggregates

9-03 GENERAL: Portland-cement plaster herein specified shall be installed in the locations shown on the drawings. Plastered ceilings shall include beams, soffits, furred spaces, and other overhead plasterwork, unless otherwise specified or shown on the drawings. Plastered walls shall include partitions, piers, columns, pilasters, plastered jambs and other returns, reveals, and backs of recesses and alcoves, and jambs and heads of windows and doors, unless otherwise specified or shown on the drawings. Plaster on walls, except the finish coat, shall be carried to the floor between grounds back of projecting metal or wood bases, cabinets, and other fixed equipment. The finish coat of plaster shall not be applied on walls of rooms having tile wainscots until after the wainscots have been installed. All walls and partitions around rooms or spaces specified to have plastered walls and acoustic-finish ceilings shall be plastered complete before the acoustic materials are installed.

9-04 MATERIALS:

a. Tie wire shall be annealed wire conforming to Federal Specification QQ-W-461a, grade FS 1020, Finish 4, Type 3. Tie wire for securing metal lath to supports and for lacing shall be not less than 0.0475 inch in diameter (18 gage).

b. Nails for attaching diamond-mesh lath to horizontal wood supports shall be 1 1/2-inch, 11-gage, barbed roofing nails with 7/16-inch diameter heads. Nails for attaching diamond-mesh lath to vertical wood supports shall be fourpenny common nails or 1-inch roofing nails with 7/16-inch-diameter heads driven to a penetration of at least 3/4 inch, or 1-inch 14-gage wire staples driven home. Nails or staples for attaching 3/8-inch rib lath to horizontal or vertical wood supports shall be 3/8 inch longer than respectively required for the other bases specified above, unless attachment is through the rib, in which case equivalent penetration into the supports shall be provided. Common nails shall be bent over to engage at least 3 strands of flat lath or the rib of 3/8-inch rib lath. Where metal lath is applied over sheathing, metal, masonry, or concrete surfaces, an approved type of furring nail which will permit the formation of plaster keys not less than 1/4 inch in thickness between the metal lath and the backing shall be used.

c. Lime:

(1) Hydrated lime shall conform to Federal Specification SS-L-351, type F, with the further requirement that the total free (unhydrated) calcium oxide (CaO) and magnesium oxide (MgO) shall not exceed 8 per cent by weight, calculated on the "as received" basis.

(2) Quicklime (pulverized) shall conform to Federal Specification SS-Q-351, type C (or type M). Pulverized quicklime shall pass a No. 20 sieve, and at least 90 per cent shall pass a No. 50 sieve. Only one brand shall be used throughout the work. After slaking to a putty, the pulverized quicklime shall have a plasticity figure of not less than 200 when tested in accordance with ASTM Standard Methods of Test C 110-49, and at the end of 72 hours the total free (unhydrated) calcium oxide (CaO) and magnesium oxide (MgO) in the hydrated product shall not exceed 8 per cent by weight, calculated on the basis of the lime solids in the putty.

d. Lime putty shall be made from hydrated lime, except that quicklime may be used when adequate time and facilities are available for aging. Suitable precautions shall be taken to protect the putty from exposure to the sun and to prevent excessive evaporation when stored. Lime putty prepared from quicklime shall be allowed to cool completely before using. Lime putty shall be prepared as follows:

(1) Hydrated lime shall be machine-mixed with water to form a putty and shall be allowed to stand for at least 15 minutes before using.

(2) Quicklime (pulverized) shall be slaked in suitably large batches, and with enough water to form a thick cream. During cool or cold weather, precautions shall be taken to maintain the heat and prevent premature cooling during the process of hydration. The slaked quicklime shall be passed through a No. 10 sieve and stored for at least 72 hours before using. When the use of lump quicklime, slaked on the job, in lieu of pulverized quicklime, is specifically approved for plastering, the cooling and aging period shall be not less than 14 days.

e. Metal corner beads, corner grounds, and base screeds:

(1) Corner beads:

(a) Expansion or perforated corner beads shall be not lighter than 26-gage galvanized metal, shall be formed with a bead not exceeding 3/16 inch, and shall have flanges at least 2-1/2 inches wide.

(b) Bull-nose corner beads shall be not lighter than 26-gage galvanized metal weighing not less than 340 pounds per 1,000 lineal feet, shall be formed with a bead having a radius of 3/4 inch, and shall have expanded-metal wings at least 2-1/2 inches wide.

(2) Corner grounds shall be not lighter than 26-gage galvanized metal, with expanded-metal wing unless otherwise shown on the drawings.

(3) Base screeds shall be not lighter than 26-gage galvanized metal, weighing not less than 160 pounds per 1,000 lineal feet and having a depth of 1/2 inch. The screeds shall be shimmed out to the required plaster thickness.

f. Metal lath shall conform to Federal Specification QQ-B-101, type F or type F3/8R, as hereinafter specified. Type F and type F3/8R expanded metal lath shall be cut from copper-bearing steel sheets, shall be hot-dip galvanized after fabrication, and shall weigh not less than 3.4 pounds per square yard.

g. Plaster-base accessories:

(1) Corner lath shall be strips of galvanized or painted expanded metal, 6 inches wide bent to form two 3-inch wings, and weighing not less than 2.5 pounds per square yard.

(2) Strip Lath shall be painted expanded metal not less than 3 inches wide, and weighing at least 2.5 pounds per square yard.

h. Portland cement shall conform to Federal Specification SS-C-192, type I. Only one brand shall be used in the work.

i. Aggregate shall be as specified in section on CONCRETE, of these specifications.

j. Water shall be clean, and free from oils, acids, alkalies, and organic or other injurious matter.

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9-05 SAMPLES OR DESCRIPTIVE DATA: The following samples or descriptive data and method of installation shall be submitted to the Contracting Officer for approval.

<u>Item</u>	<u>Requirement</u>
Base screeds	Data
Corner beads (each type)	Data
Corner grounds	Data
Lime	Data (brand name)
Metal lath (each type)	Data

9-06 DELIVERY AND STORAGE OF MATERIALS: Plaster, cement, and lime shall be stored off the ground under water-tight cover, and away from sweating walls and other damp surfaces, until ready for use. Damaged or deteriorated materials shall be removed from the premises.

9-07 CHASES: Unless otherwise directed by the Contracting Officer, chases less than 12 inches wide in masonry walls or partitions shall be covered with strip lath lapped and securely laced with tie wire at joints between sheets and secured to the masonry or other plaster base with galvanized offset-head or hook-head lath nails. Chases more than 12 inches wide shall be bridged with furring channels spaced 12 inches on centers, secured to the masonry on both sides of the chase, and then lathed. The strip or sheet lath shall lap over the masonry on both sides of the chase not less than 3 inches, and the edges of the lath shall be nailed or otherwise secured midway between furring channels in manner that will keep the lath flat against the surface of the masonry.

9-08 INSTALLATIONS:

a. Base screeds shall be placed 6 inches above the finished floor, unless otherwise shown on the drawings. The screeds shall be set level and true to line. Base screeds shall be installed in lengths as long as practicable, and shall have the joints in straight runs aligned with suitably formed splice or tie plates. Screeds applied on metal lath shall be secured with tie wire. Where the structural backing is concrete or masonry, the base screeds shall be secured with galvanized nails or drivescrews driven into fiber plugs set in the masonry, by machine screws in lead-sleeve anchorage units set in the masonry, by concrete stub nails, by wires built in the mortar joints, or by other methods approved by the Contracting Officer. Fastenings shall be spaced not more than 12 inches on centers.

b. Corner beads shall be provided on external plaster corners, including plastered jambs and heads of recessed door openings, windows, recesses, and other corners where indicated on the drawings. Corner beads shall be in single lengths where the length of a corner or jamb does not

exceed the standard stock lengths. The beads shall be neatly mitered or coped at corners, and shall be securely fastened with tie wire, galvanized staples, or offset-head or hook-head lath nails, spaced not more than 8 inches on center and staggered in two wings.

c. Corner lath: Where plaster finish is required, corner lath shall be installed in the following locations:

(1) At interior angles where the abutting surfaces are of different materials.

(2) At interior angles where the abutting surfaces are metal lath, except where flat-base metal lath, type F, is continued around the corner not less than 3 inches.

(3) At interior angles where both abutting surfaces are of concrete masonry units, not bonded with or anchored to each other.

(4) At the junction between ceiling and wall or partition surfaces, except where the metal lath of suspended ceilings is turned down at least 3 inches on the walls.

Corner lath shall be tied securely to abutting lathed surfaces at the outer edges only. Corner lath shall be fastened to masonry and concrete surfaces as specified above for the fastening of base screeds and corner beads.

d. Metal lath shall be applied in such manner as to form true surfaces, straight or in fair curves, without sags or buckles, and with the long dimension of the lath at right angles to the direction of the supports. Metal lath shall be applied to walls and partitions with the lower sheet lapping over the upper sheet. Metal lath shall be secured to supports at intervals not exceeding 6 inches. The side laps of lath on walls and partitions shall be secured to supports and tied at intervals not exceeding 9 inches between supports. The side laps of lath on ceilings shall be secured to supports and tied at intervals not exceeding 6 inches between supports. Type F expanded metal lath shall be used over vertical and horizontal supports spaced up to and including 16 inches on centers, and type F3/8R expanded metal lath over vertical and horizontal supports, spaced up to and including 24 inches on centers.

(1) Ribbed lath (type F3/8R) applied to walls and ceilings shall be butted at angle and corner intersections and reinforced with corner lath. Side ribs shall be nested. End laps of adjoining sheets shall be lapped not less than 1 inch. Such laps shall be staggered, and shall in all cases occur over supports. Lath applied direct to concrete columns and beams shall be secured either with lathing nails, driven through the meshes into fiber plugs or other approved type of anchorage insert, or with wire loops built into the concrete.

(2) Flat-base lath (type F) shall be lapped at the sides not less than $1/2$ inch. Adjacing sheets of small-opening lath shall be lapped at the ends not less than 1 inch, and such laps shall be staggered and, in all cases, occur only over supports. The ends of all flat-lath sheets shall be at least one support distant from any angle or corner, and the sheet shall be bent into the re-entrant angle or around the corner; otherwise, corner lath shall be used. Flat lath applied to ceilings shall be bent at the intersection with walls, partitions, and other vertical surfaces to be plastered, and shall be carried down at least 6 inches.

e. Strip lath, not less than 3 inches wide shall be installed over joints between dissimilar base materials where the surfaces to be plastered lie in the same plane and where the base materials cannot be effectively bonded or tied together.

9-09 GROUND: Wood grounds, installed under CARPENTRY, shall develop the plaster thickness indicated on the drawings. Spot grounds, not more than $1\ 1/2$ inches in width or diameter, shall be provided where directed by the Contracting Officer. Spot grounds shall be firmly attached to the backing and shall not be removed until the brown coat has been completed to the satisfaction of the Contracting Officer. The spaces left by the spot grounds shall be filled flush with the surface.

9-10 MIXING OF PLASTER: Except where hand-mixing of small batches is approved by the Contracting Officer, mechanical mixers of an approved type shall be used for the mixing of plaster. Caked or lumped materials shall not be used. Mechanical mixers, mixing boxes, and tools shall be cleaned after mixing each batch and kept free of plaster from previous mixes. Plaster shall be thoroughly mixed with the proper amount of water until uniform in color and consistency. Retempering will not be permitted, and all plaster which has begun to stiffen shall be discarded.

9-11 PROPORTIONING OF PLASTER: Portland-cement plaster shall be mixed by volume in the proportion of one part cement, 3 parts fine aggregate and $1/4$ lime putty.

9-12 APPLICATION OF PLASTER: Properly regulated ventilation shall be provided. Masonry surfaces on which suction must be reduced shall be dampened with a fog spray. Unless otherwise indicated on the drawings or specified, plastering shall be 2-coat work on concrete and masonry, and 3-coat work on metal lath, and the scratch and brown coats shall be carried down to the floor. Finish coats shall have a reasonably uniform thickness of approximately $1/8$ inch, and the minimum thickness at any point shall be $1/16$ inch. The thickness of the plaster, from the face of the plaster base to the finished plaster surface, shall be not less than $5/8$ inch, over metal lath and masonry, and not less than $1/2$ inch over concrete. Plaster corners above bullnose facing-tile wainscots shall be neatly molded to the radius of the facing tile and formed flush therewith.

a. Portland-Cement Plaster:

(1) Scratch coat shall be full and thick and shall be applied with sufficient force to form good keys. The scratch coat shall be cross-scratch upon attaining its initial set and shall be kept damp with a fog spray. On concrete and masonry surfaces (except where plaster is indicated on the drawings to be 3/4 inch thick), the scratch coat shall be doubled back with the same mix, straightened to a true surface and left ready for the finish coat.

(2) Brown coat shall be applied after the scratch coat has set, but not less than 24 hours after the application of the scratch coat. When applied directly to masonry, the brown coat shall be applied with sufficient pressure to fill the raked-out joints in brickwork or grooves in hollow tile to prevent air pockets and secure a good bond. The brown coat shall be lightly scratched and broomed, shall be kept moist with a fog spray for 2 days, and then be allowed to dry out.

(3) Finish coat shall not be applied until the brown coat has seasoned for 7 days. Just before application of the finish coat, the brown coat shall again be wetted evenly with a fog spray. Where cement plaster with a smooth troweled finish is specified or indicated on the drawings, the finish coat shall be first floated to a true and even surface, then troweled in a manner that will force the sand particles down into the plaster and, with the final troweling, leave the surface burnished smooth and free from rough areas, trowel marks, checks, or other blemishes. Cement plaster in all other spaces, where a smooth finish is not specified or noted on the drawings, shall be given a sand float finish of a uniform texture, as approved by the Contracting Officer. The finish coat shall be kept moist with a fog spray for at least 2 days, and thereafter shall be protected against rapid drying until properly and thoroughly cured.

9-13 SAMPLING OF PLASTER: Samples may be taken by the Contracting Officer at any time from plaster work in place. Areas represented by samples which show oversanding will be rejected.

9-14 PATCHING: Plaster containing cracks, blisters, pits, checks, or discoloration will not be acceptable. Such plaster shall be removed and replaced with plaster conforming to this specification and approved by the Contracting Officer. Patching of defective work will be permitted only when approved by the Contracting Officer, and such patching shall match existing work in texture and color.